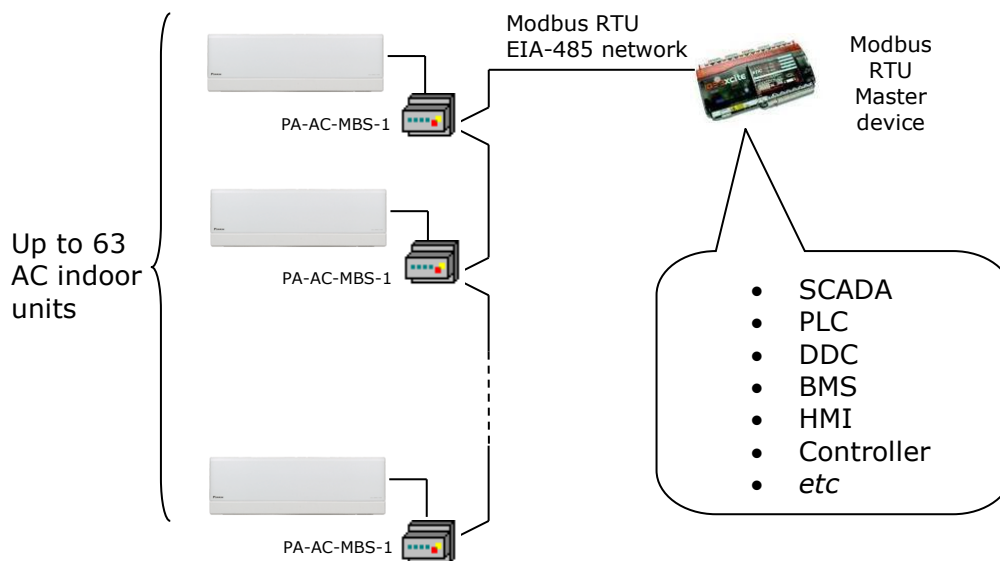




IntesisBox® PA-AC-MBS-1

Modbus Interface for PANASONIC Air Conditioners (Etherea Line)



The PA-AC-MBS-1 interface allows a complete and natural integration of **Panasonic** air conditioners into Modbus RTU (EIA-485) networks. Compatible with Etherea line models commercialized by **Panasonic**

- Reduced dimensions. 93 x 53 x 58 mm / 3.7" x 2.1" x 2.3"
- Quick and easy installation. *Mountable on DIN rail, wall, or even inside the unit in some models of AC.*
- External power not required.
- Direct connection to Modbus RTU (EIA-485) networks. Up to 63 PA-AC-MBS-1 devices can be connected in the same network. PA-AC-MBS-1 is a Modbus Slave device.
- Direct connection to the AC indoor unit. Up to 1 AC indoor units can be connected to PA-AC-MBS-1. *The cable for this connection is also supplied.*
- Configuration from both on-board DIP-switches and Modbus RTU.
- Total Control and Supervision.
- Real states of the AC unit's internal variables.
- Allows using simultaneously remote controls and Modbus RTU.

1. Modbus Interface

1.1 Modbus Functions

PA-AC-MBS-1 implements the following standard Modbus functions:

- 3: Read Holding Registers
- 4: Read Input Registers
- 6: Write Single Register
- 16: Write Multiple Registers (Despite this function is allowed, the interface does not allow write operations on more than 1 register with the same request, this means that *length* field should always be 1 when this function is being used to write).

1.2 Modbus Communication parameters

PA-AC-MBS-1 implements a Modbus RTU (Slave) interface, to be connected to an EIA-485 line. The communication parameters are:

8N2 communication (8 data bits, no parity and 2 stop bit). It also supports 8N1 communication (1 stop bit). No need to change settings of DIP-switches.

Configurable baud rates:

- 2400 bps
- 4800 bps
- 9600 bps (Default)
- 19200 bps
- 38400 bps
- 57600 bps
- 76800 bps
- 115200 bps

2. List of compatible Panasonic AC indoor units.

A list of Toshiba indoor unit model references compatible with PA-AC-MBS-1 and their available features can be found at:

https://www.intesisbox.com/intesis/support/compatibilities/IntesisBox_PA-AC-xxx-1_AC_Compatibility.pdf

3. Electrical and mechanical features

Enclosure	Plastic, type PC (UL 94 V-0) Net dimensions (dxwxh): 93 x 53 x 58 mm / 3.7" x 2.1" x 2.3" Color: Light Grey. RAL 7035	Operation Temperature	0°C to +60°C
Weight	85 g.	Stock Temperature	-20°C to +85°C
Mounting	Wall DIN rail EN60715 TH35.	Operational Humidity	<95% RH, non-condensing
Terminal Wiring (for low-voltage signals)	For terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm ² ... 2.5mm ² 2 cores: 0.5mm ² ... 1.5mm ² 3 cores: not permitted	Stock Humidity	<95% RH, non-condensing
Modbus RTU port	1 x Serial EIA485 Plug-in screw terminal block (2 poles) A, B Compatible with Modbus RTU EIA-485 networks	Isolation voltage	1500 VDC
AC unit port	1 x Specific connector Specific cable included	Isolation resistance	1000 MΩ
Switch 1 (SW1)	1 x DIP-Switch for AC features	Protection	IP20 (IEC60529)
Switch 3 (SW3)	1 x DIP-Switch for Modbus RTU settings	LED indicators	1 x Onboard LED - Operational status
Switch 4 (SW4)	1 x DIP-Switch for extra functions		

4. Connections

PA-AC-MBS-1 connects directly to the indoor unit connector **CN-CNT**. Use the EIA485 connector in the PA-AC-MBS-1 to connect to the Modbus network.

